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HUNTERS POINT
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SITE IR-1/21 INDUSTRIAL LANDFILL
GROUNDWATER EXTRACTION SYSTEM
HUNTERS POINT NAVAL SHIPYARD
JULY 2001 MONTHLY REPORT

Environmental Remedial Action
Contract No. N62474-93-D-2151
Delivery Order 0083

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August 14, 2001

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Environmental Division
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Submitted by:

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A Member of The IT Group

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1.0 Introduction

This monthly report was prepared by IT Corporation (IT) on behalf of the U.S. Navy under Contract No. N62474-93-D-2151, Delivery Order 0083, to document activities associated with the operation and maintenance (O&M) of the groundwater extraction system (GES) at Hunters Point Shipyard, Site IR-1/21 Industrial Landfill. This report includes a summary of activities from June 18 through July 19, 2001.

The objective of the GES is to prevent mounding of the groundwater behind a containment wall at a limited portion of the landfill, thereby reducing the potential for migration of groundwater from the landfill into the San Francisco Bay. The GES collects groundwater from seven extraction wells and one extraction trench, and discharges the groundwater into the City and County of San Francisco sanitary sewer. The GES works in conjunction with a downgradient sheet pile containment barrier to prevent groundwater mounding and subsequent flow around the containment barrier. The installation of the containment barrier was completed in December 1997, and the GES began operations in February 1999 (IT, 1999). A cathodic protection system, commissioned in June 1999, protects the sheet pile barrier from corrosion.

Operation of the GES and scheduled monitoring events are conducted in accordance with the Operation and Maintenance Manual (IT, 2000) and with the City and County of San Francisco Industrial Wastewater Discharger Class I Permit No. 98-0301 (CCSF, No. 98-0301). This permit was issued on December 14, 1998, and expires on December 14, 2001.

2.0 Summary of Field Activities

Field activities performed during this reporting period of June 18 through July 19, 2001, included various O&M activities and the collection of field data. The field data collected included groundwater levels in wells and piezometers, pressure readings and flow readings throughout the system, and voltage and amperage readings at the cathodic protection system rectifiers.

2.1 Operation and Maintenance

The following O&M activities were performed at the GES during this reporting period:

- On July 10, EW-134 was shut down because Pressure read 30 psi and the flow was zero. EW-134 will be repaired in early August.
- On July 10, EW-154 was shut down because the pump was not working. EW-154 will be repaired in early August.
- On July 10, EW-158 was shut down because the pump was cycling on and off.
- On July 17, EW-158 was repaired. A capacitor was blown, not giving the motor enough power to turn on.
- On July 17, EW-150 was shut down because the flow meter was not working. The flow meter will be replaced in early August.
- On July 17, PZ-107C was noted as having a black liquid that resembled oil on the bottom of the well.

2.2 Field Data

Data collected during this period to evaluate O&M of the GES and cathodic protection system include:

- Groundwater levels were measured in extraction wells, monitoring wells, and piezometers.
- Pressure and flow readings were taken at the extraction wells and at the collection and monitoring pad.
- Voltage and amperage readings were taken at the cathodic protection system rectifiers.

These readings are included as Appendices A, B, and C, respectively. These data are used to evaluate the performance of the system.

2.2.1 Groundwater Level Measurements

During this reporting period, water levels were measured at the extraction wells, monitoring wells, and piezometers on July 19, 2001. Depth to groundwater was measured to the nearest 0.01 foot. These measurements are provided in Appendix A. Included in Appendix A are the groundwater elevations associated with the groundwater level measurements and a map of the potentiometric surface (Figure 1).

2.2.2 Groundwater Extraction System Measurements

Pressure and flow readings were taken at the extraction wells on July 19, 2001. These measurements are provided in Appendix B. The total flow for the 31-day discharge period from June 18 through July 19, 2001 was 231,668 gallons, with an average flow rate of 5.1 gallons per minute. The total flow was calculated by adding the flows at each extraction well. The accuracy of this flow reading was confirmed by the monthly flow reading at the discharge pipe. The combined flow reading at the discharge pipe was 254,721 gallons, which is 7.3 percent larger than the combined flow total from the extraction wells. This deviation is within the 10 percent accuracy range specified by the permit (CCSF, No. 98-0301).

2.2.3 Rectifier Inspection

The rectifiers were inspected on July 19, 2001. A record of this inspection is provided in Appendix C. The output at Rectifier One was 10 volts and 41.0 amperes (amps). The output at Rectifier Two was 16 volts and 41 amps.

2.3 Sample Collection

The City and County of San Francisco Industrial Wastewater Discharger Class I Permit No. 98-0301 requires a quarterly sample to be collected from the GES effluent. The next quarterly sampling event will take place September 2001.

3.0 References

IT Corporation, 1999, *Contractor Quality Control Plan, Environmental Protection Plan, Sampling and Analysis Plan, Health and Safety Plan, Long Term Groundwater Extraction and Monitoring, Site IR-1/21 Industrial Landfill, Hunters Point Shipyard, San Francisco, California, Delivery Order #0083*, Revision 0, Martinez, California.

IT Corporation, 2000, *Operation and Maintenance Manual, Groundwater Extraction System/Containment Barrier, Site IR-1/21 Industrial Landfill, Hunters Point Shipyard, San Francisco, California, Delivery Order #0083*, Revision 0, Concord, California.

APPENDIX A
GROUNDWATER LEVEL MEASUREMENTS AND MAP OF THE POTENTIOMETRIC SURFACE

U.S. Navy, Southwest Division
Contract No. N62474-93-D-2151
Delivery Order #0083
Hunters Point Shipyard, Site IR-1/21 Industrial Landfill
Monthly Monitoring Well, Extraction Well, and Piezometer Water Levels

IT Corporation
Project No. 771003

Date Recorded: 07/19/01
Operator: Ben Porter

Location	Time	Depth to Water Level (ft TOC)	Groundwater Elevation (ft)
EW-108	0950	3.94	2.91
EW-122	0953	5.41	2.87
EW-134	1005	NA	NA
EW-138	1008	10.52	-1.07
EW-142	1012	9.20	0.85
EW-146	1016	8.32	1.52
EW-150	1020	11.00	-1.26
EW-154	1026	6.30	4.00
EW-158	1031	13.62	-3.12
IR01MW1-3	945	11.22	2.56
IR01MW43A	904	10.06	2.16
IR01MW44A	0757	6.79	2.33
IR01MW47B	0854	8.79	3.49
MW-60-1	0940	11.91	2.78
MW-60-2	0922	10.65	2.94
MW-60-3	0807	7.54	2.46
MW-60-4	0746	6.15	3.23
PZ-93D	0742	7.42	2.95
PZ-100B	0753	7.53	2.34
PZ-100E	0750	7.59	≤ 4.0 (dry)
PZ-107C	0754	7.86	2.04
PZ-107D	0801	7.48	2.76
PZ-107E	0804	7.18	3.61
PZ-107F	0739	7.05	4.54
PZ-114D	0810	7.29	3.09

Location	Time	Depth to Water Level (ft TOC)	Groundwater Elevation (ft)
PZ-121A	0830	8.10	3.07
PZ-121B	0827	8.82	≤ 2.8 (dry)
PZ-121C	0824	8.68	3.95
PZ-121E	0821	6.72	4.97
PZ-121F	0815	10.71	2.89
PZ-131A	0859	10.42	2.80
PZ-131D	0850	9.48	2.58
PZ-131E	0855	11.04	3.09
PZ-131F	0818	8.52	4.98
PZ-138A	0903	10.80	2.79
PZ-138B	0906	10.29	3.75
PZ-138C	0912	11.63	2.72
PZ-138D	0916	12.11	2.66
PZ-138E	0919	11.70	2.69
PZ-138F	-----	E.C.	-----
PZ-144C	0920	12.03	2.72
PZ-144E	0922	12.38	2.70
PZ-150A	0924	12.88	2.63
PZ-150B	0927	12.00	2.67
PZ-150C	0930	12.06	2.77
PZ-150D	0932	12.40	2.75
PZ-150E	0935	12.51	2.79
PZ-150F	-----	E.C.	-----
PZ-159A	0942	11.20	2.89
PZ-161D	0939	12.40	2.86

NOTES:

NA:	Well not accessible
---:	Not applicable
TOC:	Top of Casing
ft:	Feet
E.C.	Extended Casing (the well height has been changed but not resurveyed)

DRAWING NUMBER 771003-E61

APPROVED BY [illegible] 8/13/01

CHECKED BY [illegible] 8/13/01

DRAWN BY SCHAEFFER 8/13/01

OFFICE Concord

X-REF ---

IMAGE ---

E 1457600

LEGEND

MW-XX-X	GROUNDWATER MONITORING WELL INSTALLED FOR THIS REMOVAL ACTION
PZ-XXX	PIEZOMETER LOCATION
EW-XXX	GROUNDWATER EXTRACTION WELL
IRXXMWXXX	GROUNDWATER MONITORING WELL INSTALLED AS PART OF THE INSTALLATION RESTORATION PROGRAM
	SHEET PILE WALL
	EXTRACTION TRENCH
	POTENTIOMETRIC SURFACE CONTOUR
X.XX	WATER TABLE ELEVATION IN FEET
•	TOP OF CASING EXTENDED DURING LANDFILL CONSTRUCTION; TOP OF CASING NEEDS TO BE RESURVEYED.
NA	WELL NOT ACCESSIBLE

NOTE:

THE ELEVATION AT PZ-161D WAS SURVEYED BY IT ON FEBRUARY 17, 2000. ALL OTHER ELEVATIONS WERE SURVEYED BY RONALD GREENWELL AND ASSOCIATES ON MARCH 16 AND JULY 20, 1998.

SHEET PILE WALL

SOUTHERN GROUNDWATER EXTRACTION TRENCH

IR01MW1-3 2.56

PZ-159A 2.89

MW-60-1 2.78

EW-154 4.00

EW-158 -3.12

PZ-150A 2.63

PZ-150B 2.67

PZ-150C 2.77

EW-150 -1.26

PZ-161D 2.86

PZ-150D 2.75

MW-60-2 2.94

EW-146 1.52

PZ-150E 2.79

PZ-144C 2.72

EW-142 0.85

PZ-138A 2.79

PZ-144E 2.70

EW-138 -1.07

PZ-138B 3.75

PZ-138C 2.72

PZ-150F•

PZ-131A 2.80

IR01MW43A 2.16

EW-134 NA

PZ-138D 2.66

PZ-131D 2.58

PZ-138E 2.69

PZ-121A 3.07

MW-60-3 2.46

IR01MW47B 3.49

PZ-121B DRY

TRENCH CLEANOUT

IR01MW44A 2.33

EW-122 2.87

PZ-131E 3.09

PZ-121C 3.95

PZ-100B 2.34

EW-108 2.91

FENCE

TREATMENT COMPOUND

PZ-138F•

PZ-107C 2.04

PZ-107D 2.76

PZ-114D 3.09

PZ-121E 4.97

PZ-93D 2.95

MW-60-4 3.23

PZ-107E 3.61

PZ-100E DRY

PZ-131F 4.98

PZ-121F 2.89

PZ-107F 4.54

RUIN

DEBRIS PILES

DIRT PILES

CONCRETE BLOCKS & ROCKS

J STREET

SCALE

0 20 40 60 FEET

IT CORPORATION

DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
SAN DIEGO, CALIFORNIA

FIGURE 1
SITE IR-1/21 INDUSTRIAL LANDFILL
POTENTIOMETRIC SURFACE MAP
JULY 19, 2001
HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

APPENDIX B
EXTRACTION WELL AND SYSTEM READINGS

Contract No. N62474-93-D-2151
Delivery Order #0083
Hunters Point Shipyard, Site IR-1/21 Industrial Landfill
Monthly Extraction Well and System Readings

IT Corporation
Project No. 771003

Date Recorded: 07/19/2001
Operator: Ben Porter

Location	Time	Pressure (psi)	Flowrate (gpm)	Total Flow (gal) (Since 02/20/99)	Change in Flow (gal) (06/18/01-07/19/01)
EW-108	10:40	71	2	260,817	2,608
EW-122	10:44	65	2	149,177	5
EW-134	10:47	10	0	185,322	1,327
EW-138	10:53	72	2.2	2,034,232	72,456
EW-142	10:56	87	3.1	231,948	8,492
EW-146	10:59	82	1.3	704,835	30,058
EW-150	11:02	70	not working	2,036,885	31,931
EW-154	11:07	0	0	176,287	5,619
EW-158	11:11	20	9.1	7,138,389	76,172
Total Change in Flow at the Wells					228,668
Collection and Monitoring Pad	11:18	4	10.3	10,691,468	254,721

Conductivity at Monitoring Pad: 4.28 mS/CM

Average Monthly Flowrate, Using Readings at the Wells (gpm)	5.1
Average Monthly Flowrate, Using Readings at Monitoring Pad (gpm)	5.5
Error of Flowmeter at the Monitoring Pad (%)	7.3%

Abbreviations:
psi = pounds per square inch
gpm = gallons per minute
gal = gallon
EW = extraction well
mS/CM = millisiemens / centimeter

APPENDIX C
CATHODIC PROTECTION SYSTEM RECTIFIER INSPECTION REPORT

U.S. Navy, Southwest Division
Contract No. N62474-93-D-2151
Delivery Order #0083
Hunters Point Shipyard, Site IR-1/21 Industrial Landfill
Cathodic Protection System Monthly Inspection Record

IT Corporation **Project No. 771003**

Date	Rectifier #1 Output		Rectifier #2 Output		Taps	
	Volts	Amperes	Volts	Amperes	C	F
06/01/1999	10.5	41.4	10.3	44.8	1	3
08/19/1999	10.8	44.0	10.2	48.2	1	3
09/09/1999	10.8	44.1	10.2	48.8	1	3
10/28/1999	10.6	47.4	10.0	≥ 50.0	1	3
11/18/1999	11.8	46.3	9.9	≥ 50.0	1	3
12/16/1999	11.5	46.1	8.7	48.6	1	3
01/13/2000	11.5	45.3	10.1	48.5	1	3
02/03/2000	11.4	46.5	10.0	48.2	1	3
03/09/2000	11.3	46.2	9.9	48.9	1	3
04/06/2000	10.8	45.3	10.1	48.9	1	3
05/10/2000	11.3	45.5	10.0	48.3	1	3
06/07/2000	10.7	44.5	10.0	48.0	1	3
07/06/2000	11.0	44.0	10.0	47.5	1	3
08/23/2000	12	44	10	48	1	3
09/12/2000	12	44	10	47.5	1	3
10/09/2000	11	45	10	48	1	3
11/02/2000	11	44	10	47.5	1	3
12/06/2000	10.5	46	10	49.5	1	3
06/07/2000	10.7	44.5	10.0	48.0	1	3
12/06/2000	10.5	46	10	49.5	1	3
01/09/2001	11	46.5	10	≥ 50.0	1	3
02/06/2001	11	48	10	≥ 50.0	1	3
03/23/2001	11	45	10	48.5	1	3
04/06/2001	12	46.5	10	≥ 50.0	1	3
05/17/2001	11	47.0	10	≥ 50.0	1	3
06/18/2001	10	41.0	16	41	1	3
07/19/2001	10	41.0	16	41	1	3

≥ = greater than or equal to (gauge was maxed out)